

Notes - Factoring by Grouping

⇒ Often these problems have 4 terms

1. Cut the problem in half
2. Factor each half using the **GCF**
3. Pull the GCFs together to make one factor and bring down the matching leftovers as the other factor () ()

Ex 1: Factor

$$a^3 - 4a^2 + 3a - 12$$

$\begin{matrix} a^2 & -4a & +3a & -12 \\ \textcircled{a} & \textcircled{2} & \textcircled{3} & \textcircled{2} \end{matrix}$

$$a^2(a-4) + 3(a-4)$$

$$(a^2 + 3)(a - 4)$$

← the () "leftovers" Must Match!

Ex 2: Factor $2yx + 6y - x - 3$

$$2y(x+3) - 1(x+3)$$

$$(2y - 1)(x + 3)$$

Ex 3:

$$2x^2 - x + 6x - 3$$

$\begin{matrix} 2x^2 & +5x & -3 \\ & \textcircled{1} & \end{matrix}$

$$x(2x-1) + 3(2x-1)$$

$$(x + 3)(2x - 1)$$